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TITLE: Short-Term Exercise and Prostate Cancer Prevention in African American Men

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CONTRACTING ORGANIZATION: Howard University
Washington DC 20059

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13. SUPPLEMENTARY NOTES

14. ABSTRACT: This study seeks to examine the impact of exercise on serum factors related to prostate cancer in African-American men. Aims and Objectives: 1. To recruit 40 African-American men between the ages of 40 and 70 who are at increased risk for developing prostate cancer and randomize them into an exercise intervention or control group. 2. To examine the effect of 12 days of aerobic exercise over 4 weeks on PSA levels in African-American men who have PSA levels under 4.0 ng/ml. 3. To examine the effect of 12 days of aerobic exercise on free and total testosterone, insulin, IGF1, and SHBG levels in African-American men. A total of 40 African-American men between the ages of 40 – 70 yrs, from the Howard University Cancer Center prostate screening program that have a PSA under 4.0 ng/ml, a BMI > 25 and < 35 kg/m2, <375 pounds, and have been sedentary for at least 6 months (not exercising for more than 20 minutes 2 days a week). The men will be randomized into 2 groups 12 days of aerobic exercise (20 participants), or a control group (20 participants). The 12 days of exercise will consist of 30 minutes of walking on a treadmill at 50 – 60% of maximal heart rate reserve (HRR). Free testosterone, lipids, glucose, insulin, SHBG, psychosocial measures, body weight, BMI and body fat, anthropometric measurements, height, and weight will be measured before and after the study.

15. SUBJECT TERMS
Prostate Cancer Risk Reduction, African-American, Males

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Annual Report

Short-Term Exercise and Prostate Cancer Prevention in African-American Men

Proposal Log Number PC040735, Award Number W81XWH-05-1-0366, HSRRB Log Number A-13283

INTRODUCTION

Background:

African-American men have the highest incidence of prostate cancer in the world. The incidence of prostate cancer in African-American men is 59% greater than in Caucasian men. The exact cause for the increased incidence of prostate cancer in African-American is unknown. However, a diet high in fat and/or a sedentary lifestyle may predispose African-African men to prostate cancer by affecting levels of serum factors that potentate the growth of the cancer cells such as free testosterone, sex hormone-binding globulin (SHBG), insulin, insulin-like growth factor-1 (IGF1), prostate-specific antigen (PSA), and insulin-like growth factor binding proteins- 2 and 3.

Aims and Objectives:

1. To recruit 40 African-American men between the ages of 40 and 70 who are at increased risk for developing prostate cancer and randomize them into an exercise intervention or control group.
2. To examine the effect of 12 days of aerobic exercise over 4 weeks on PSA levels in African-American men who have PSA levels under 4.0 ng/ml.
3. To examine the effect of 12 days of aerobic exercise on free and total testosterone, insulin, IGF1, and SHBG levels in African-American men.

Hypothesis:

H1 Twelve days of exercise will reduce PSA levels in African-American men.
H2 Twelve days of exercise will reduce free and total testosterone levels in African-American men.
H3 Twelve days of exercise will reduce insulin levels in African-American men.
H4 Twelve days of exercise will increase SHBG levels of African-American men.

Study Design:

A total of 40 African-American men between the ages of 40 – 70 yrs, from the Howard University Cancer Center prostate screening program that have a PSA under 4.0 ng/ml, a BMI $\geq$ 25 and < 35 kg/m^2, <375 pounds, and have been sedentary for at least 6 months (not exercising for more than 20 minutes 2 days a week). The men will be randomized into 2 groups 12 days of aerobic exercise (20 participants), or a control group (20 participants). All participants will be screened by a physician for cardiovascular disease and will participate in a maximal graded exercise test. The 12 days of exercise will consist of 30 minutes of walking on a treadmill at 50 – 60% of maximal heart rate reserve (HRR). Blood samples will be taken in the morning after an overnight fast on day 2, and day 16, 24 – 36 hours after the last bout of exercise. Serum will be separated from the blood and stored at -80˚C until analyzed. Free testosterone, lipids, glucose, insulin,

SHBG, psychosocial measures, body weight, BMI and body fat, anthropometric measurements, height, and weight will be measured before and after the study.

BODY

1) KEY RESEARCH ACCOMPLISHMENTS

Data collection for this study was just terminated. Therefore, no research findings are available for reporting to date. Preparations for data analysis are currently being made.

2) STATEMENT OF WORK/TIME LINE

Months	Item	Status
Months 1-3	IRB Submission, revision and approval	Initial Review Completed – Renewal pending
	Study preparation (laboratory set-up/personnel selection)	Completed - Replacement of study physician
Months 3-20	Data Collection	28 participants recruited
Months 20-24	Data Analysis/ Manuscript Development/Dissemination	Not yet initiated

REPORTABLE OUTCOMES

1) IRB UPDATE

IRB: IRB approval was obtained on January 2008 and is valid until April 30 2008.

2) ENROLLEMENT STATUS

Recruitment Strategies

HUCC Prostate Cancer Screening: A strong recruitment effort has been made to promote study enrollment. Our main source of recruitment has come from the Howard Cancer Center monthly prostate screenings. Study flyers were sent to men with PSA values < 4.0 ng/ml. Interested participants called the research office and were pre-screened and scheduled for appointments.

Physician Offices: Flyers were placed in HUH Family Practice, Oncology, and Radiology offices.

Churches: Study flyers were sent to area churches. Some churches included the study information in the Sunday bulletins. Flyers were also sent to church based cancer support groups.

Support Groups: Study flyers were sent to area cancer support groups.

Print Media: An advertisement for this study was placed in the Washington Post and the North West Current.

Health Fairs: This study was advertised at a number of health fairs. In particular, the study flyers were distributed at the Black Family Reunion (September, 2006). This event drew a large number of area African-American residents. Also, study flyers were distributed at the Channel 4 (NBC) "It's Your Health" event (2007). This health fair drew a large number of area residents as well. This study was also promoted at a number of church health fairs.

Prostate Screening Grant: The Howard University Cancer Center has encumbered external funds from the District of Columbia's Department of Health to screen 3,500 African-American men for prostate cancer. This screening effort has attracted a large number of potential participants to this study.

3) RESEARCH PROGRESS

Number of Men Pre-Screened:

A total of 219 men responded to our recruitment efforts. Of this number, 47 men were enrolled in the study. 172 men did not qualify for the study for the following reasons: 11 men did not qualify due to PSA results outside the study range, 42 were physically active, 3 men were diagnosed with prostate cancer, 8 men had uncontrolled high blood pressure, 10 men did not know their PSA results, 1 person was recently had a hip replacement, 3 men were on PSA reducing medications, 1 person was on beta-blockers, 4 men did not meet the age requirements, 1 person did not meet the weight requirements, 5 men were no longer interested after being screened, 2 men could not participate due to conflicting schedules, 61 men were not able to be reached by telephone after several attempts, and 20 men failed to show for scheduled visits.

Number of Men Enrolled:

A total of 47 participants have been enrolled and consented to date. Twenty-eight participants have successfully completed the study. Twelve of these participants have been placed in the exercise intervention group and sixteen have been placed in the control group.

Ten of the enrolled men were found to be ineligible for the study during the screening phase. Of this number, 5 men had uncontrolled hypertension, 1 had benign prostatic hyperplasia, 1 had had a prostatectomy, 1 was physically unable to exercise, 1 was unable to read English, and 1 did not meet the age requirements. Nine men withdrew from the study after successfully completing the screening phase. Of these men, 3 were no longer interested, 2 withdrew because of time restraints, 2 became physically unable to exercise due to reasons unrelated to the exercise intervention, and 2 were no longer able to be contacted after several attempts.

4) AMENDMENTS

The following study amendment has been submitted to Howard University IRB. This amendment was submitted and approved by Howard University IRB.

1. **Personnel Change:**

Dr. Dr. Emeka Ihemelandu (Howard University Hospital) is no longer on faculty at Howard University Hospital. Therefore, Dr. Wallace Mondesire (biosketch in appendix) will replace Dr. Ihemelandu and will serve as the physician overseeing the graded exercise testing.

5) ADVERSE EVENTS/COMPLAINTS/DEVIATIONS

No adverse events, complaints or deviations have been made regarding this protocol.

6) CONCLUSION

The effect of exercise on serum factors that increase the risk of prostate cancer has never been examined in AA men. Some studies have reported leisure-time physical activity levels in blacks ages 35 – 74 to be significantly lower than whites of similar age. It has been suggested that a high fat diet and sedentary lifestyle may possibly cause the increased incidence of prostate cancer in AA men. The results of this study have the potential to provide essential and practical recommendations for lifestyle interventions.

APPENDIX

WALLACE H. MONDESIRE, M.D.
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Bethesda, MD 20814
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Post Graduate Education:

John Wayne Cancer Institute
Santa Monica, CA
Surgical Oncology Research Fellowship
2005 - 2006

University of Texas M. D. Anderson Cancer Center
Houston, TX
Post Doctoral Fellow – Surgical Oncology
2002 - 2005

Howard University Hospital, Department of Surgery
Washington, D.C.
General Surgery Resident
1995-1997, 1999-2002

National Institutes of Health – National Cancer Institute
Bethesda, Maryland
Oncology Research Fellowship
1997-1999

Education:

Howard University College of Medicine
Washington, D.C.
Degree: Doctor of Medicine
Graduation: May 1995

Hampton University
Hampton, Virginia
Degree: Bachelor of Science
Graduation: May 1989

Research:

"Inhibition of Serine -Threonine Kinase mTOR Enhances the Effect of Chemotherapy in Breast Cancer Cells"
Preceptor: Funda Meric M.D.
University of Texas M. D. Anderson Cancer Center
Surgical Oncology
2002-2005

"Treatment of CT.26 Tumor with Bone Marrow Derived Dendritic Cells Pulsed with GP70 Peptide"
Preceptors: Steven A. Rosenberg, M.D., Ph.D. and Patrick Hwu, M.D.
National Institutes of Health – National Cancer Institute
Surgery Branch
1997-1999

"Cloning of the Connexin 46 Gene"
Preceptor: Ana B. Chepelinsky, Ph.D.
National Institutes of Health – National Eye Institute
Bethesda, Maryland
1990-1991

"Survival and Quality of Life Among Patients Receiving Unproven as Compared with Conventional Cancer Therapy"
Preceptor: Barrie Cassilleth, Ph.D.
Hospital of the University of Pennsylvania
Philadelphia, Pennsylvania
1999

Papers:

Kershaw MH, Hsu C, **Mondesire W**, Parker LL, Wang G, Overwijk WW, Lapointe R, Yang JC, Wang RF, Restifo NP, Hwu P. Immunization against endogenous retroviral tumor-associated antigens. Cancer Res 61(21):7920-7924, 2001.

Noh W-C, **Mondesire WH**, Peng J, Jian W, Zhang H, Mills G, Hung M-C, Meric-Bernstam F. Determinants of rapamycin sensitivity in breast cancer cells Clin Cancer Res 10(3):1013-1023, 2004.

Mondesire WH, Weiguo J, Zhang H, Ensr J, Hung M-C, Mills G, Meric-Bernstam F. Targeting mTOR synergistically enhances chemotherapy-induced

cytotoxicity in Breast Cancer Cells. Clin Cancer Res 10(20):7031-7042, 2004.

Dong J, Peng J, Zhang H, **Mondesire WH**, Jian W, Mills GB, Hung MC, Meric-Bernstam F. Role of glycogen synthase kinase 3-beta in rapamycin-mediated cell cycle regulation and chemosensitivity. Cancer Res 65(5):1961-1972.

Abstracts:

Noh W-C, Peng J, **Mondesire WH**, Mills G, Hung M-C, Meric F. "Rapamycin sensitivity in breast cancer cells." Proceedings of the American Association of Cancer Research (Abstract #652), 2003.

Mondesire WH, Weiguo J, Zhang H, Ensor J, Hung M-C, Mills G, Meric-Bernstam F. "Rapamycin Synergistically Enhances the Cytotoxicity of Paclitaxel in Breast Cancer Cells." Annals Surg Onc (Abstract #P4), S84, 2004.

Mondesire WH, Weiguo J, Zhang H, Ensor J, Hung M-C, Mills G, Meric-Bernstam F. "Targeting mTOR synergistically enhances chemotherapy-induced cytotoxicity in Breast Cancer Cells." U T M. D. Anderson Alumni and Faculty Association 8th Annual Trainee Recognition Day, 2004.

Mondesire WH, Zhang H, Dong J, Mills GB, Meric-Bernstam F. "Rapamycin Enhances Paclitaxel-Induced Cytotoxicity in a GSK3-Dependent Manner." Society of University Surgeons, 2005.

Esparza A, Chilton J, Detry M, Fuchs-Young R, Gor B, Hajek R, Heggie J, Hernandez-Valero M, Hoang S, King D, Lewis A, **Mondesire WH**, Regisford G, Jones L. "Bridging the Gap-Addressing Environmental Health Through Science." Health Disparities Symposium, Morehouse School of Medicine, Atlanta, GA, 2005.

Mondesire WH, Faries M, Wanek L, Essner R, Foshag L, Morton D. "Prognostic Impact of Location (Hand/Foot vs. Other) in Melanoma of the Extremity." Annals Surg Onc (Abstract #P210), 2006

Presentations:

"Insulinomas – Localization, Evaluation and Management for the General Surgeon"

All-City Grand Rounds
Children's National Medical Center, Washington, D.C.
May 1999

"Vertebral Artery Injuries – Trends in Management"
All City-Wide Trauma Conference
Children's National Medical Center, Washington, D.C.
May 1996

"The Integration of Research and Medicine"
Student National Medical Association Region III Medical Education Conference.
October 2004

Awards/Honors:

Howard University Hospital Department of Surgery, 1996

Chairman's Award – Outstanding Intern, 1996

Howard University Medical Alumni Scholarship, 1994-995

Hampton University Dean's List, 1986 & 1989

Affiliations:

American College of Surgeons – Candidate Group

American Board of Surgery – Board Eligible

The Society of Surgical Oncology – Candidate Member

American Medical Association

Medical Society of District of Columbia

Kappa Alpha Psi Fraternity, Incorporated

References Available Upon Request